

ARCHÆOLOGICAL EXPLORATION IN GUATEMALA.

THE first part of the fourth volume of the Memoirs of the Peabody Museum, Harvard University, is devoted to an account of exploration by Mr. Teobert Maler in the

State seems unable to prevent. Mr. Maler tells a curious story which appears to show that certain valuable stelæ were destroyed during an attempt by a Government official to prepare moulds of the sculptures for the Chicago Exhibition. It is quite time that the American Government intervened to preserve these wonderful structures.

Taking all these obstacles to archaeological inquiry into account, it is only natural that Mr. Maler's survey was little more than a reconnaissance. He had no opportunities for excavation, but was able to procure photographs and moulds of the most important remains. The four great groups of ruins were visited—those at the so-called Altar de Sacrificios and the more important sites, Itsimté-Sacluc, Seibal, Cankuen—the order of their occurrence along the course of the river. Of these, the Seibal site seems to be the most promising, though nothing so interesting as the great sacrificial altar, a mass of reddish sandstone 160 cm. in diameter, was discovered here. In the other sites the most remarkable remains are the groups of stelæ or pillars which have survived, while the buildings to which they formed an adjunct are in such a state of decay that without excavation little of their character can be ascertained. The stelæ bear usually the representation of a figure, probably hero, priest, deity, or all combined, with various emblems and accessories, following generally the type characteristic of Central American art. In some cases the figure is seated in European fashion on a sort of throne. In one stela at Seibal he holds in his outstretched right hand a large sawfish lance, and in his

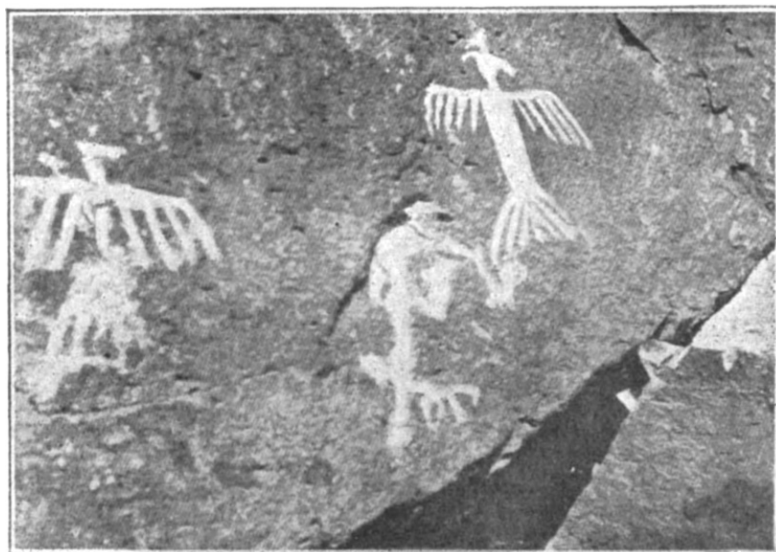


FIG. 1.—Photographs at entrance of Tularosa Box Canyon below Delgars.

valley of the Upper Usumatsintla, or the Usumacinta, as it appears in some modern maps, a river rising in Guatemala, falling into the Gulf of Mexico, and forming for part of its course the boundary between the Peten province of Guatemala and the Chiampas of Mexico. The exploration has thrown much new light on the geography of a region which has up to the present been very imperfectly explored. It is a wild country largely covered with tropical jungle, the main industry, that of lumber, attracting a particularly disreputable class of workmen, while agriculture is confined to a few scattered maize plantations. The author gives a very gloomy account of the population. "The dubious elements," he says, "sunk in sloth, filth, and every possible vice, whose miserable habitations are met with here and there, are constantly shifting since they acquire no fixed property rights." Whoever commits murder across the Mexican border takes refuge in Guatemala, and *vice versa*. Attempts are, of course, made to secure the extradition of offenders, but these are generally unsuccessful. In fact, the negro is gradually taking the place of the Spanish-Indian population, which, having become enervated and degraded, is rapidly dying out.

The difficulty of exploration is naturally increased in such a country by the failure of the so-called Government to enforce law and order. Further, in Spanish times many of the old native names were replaced by those of Christian saints. The few that have survived to our days have been supplanted by political catch-words, Progreso, Libertad, and the like. More serious is the damage to these ancient buildings, which the

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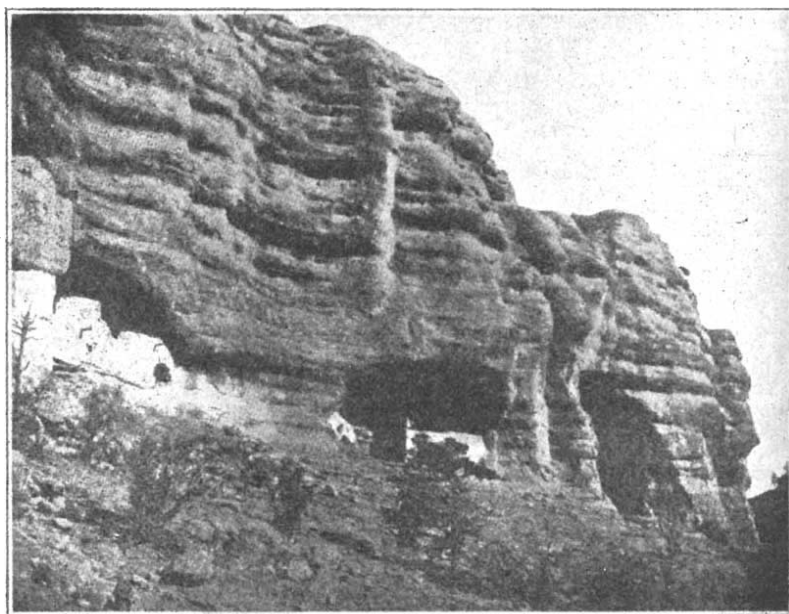


FIG. 2.—Cliff-dwellings, west fork of the Gila.

left a pouch decorated with elaborate arabesques and loops. In another two personages sit in Turkish style before an altar, at which they are performing some sacred rite. More remarkable is the "tiger-paw man," whose hands and feet are covered with tigers' paws fastened by

bandages to wrists and ankles. In another sculpture the hideous face of the figure seems to be masked by the flayed skin of a human victim. Indeed, as might have been expected, human sacrifice seems to have played a leading part in the cruel religious rites of this people.

Mr. Maler does not venture an explanation of the symbolism, nor does he speculate on the origin and significance of these sculptures, which cannot be interpreted until the buildings to which they were attached have been fully examined. Meanwhile, he has done good service in collecting drawings, moulds, and photographs of a remarkable series of monuments, which under the present government of the country are in imminent danger of destruction before they can be subjected to careful scientific examination.

THE NEW BUILDINGS OF THE UNIVERSITY OF LEEDS.

THE opening of the new buildings of the University of Leeds by the King, who was accompanied by the Queen, was briefly recorded in NATURE of July 9. A visit on the part of the Sovereign to a modern university, though not a unique occurrence, is sufficiently rare to be regarded, at least by the favoured institution, as an historical event. It is a Royal tribute to learning, cultivated not, as heretofore, in the silent precincts of sombre, mediæval halls, but strenuously pursued within earshot of busy factories and the hum of city life. It is, moreover, a public recognition and encouragement of the aims of a community which has provided from its own resources a centre of active scientific and academic life.

Historical.—Although the Leeds School of Medicine, which dates so far back as 1831, represents the oldest branch of the University, it is the Yorkshire College of Science, founded in 1874, which forms its real nucleus, the School of Medicine being incorporated in 1884. The College was then a modest block of buildings near the centre of the town, and began its first year with three professors and one student.

The first important development of the College of Science occurred in 1877, when it took over from the University Extension Committee the teaching of arts subjects, and became the Yorkshire College. In the same year the foundation-stone of the present buildings was laid by the late Dr. Thomson, Archbishop of York.

The Clothworkers' Company, the generosity of which to the technical departments of the college is as conspicuous as it is consistent, undertook the first section of the college buildings by erecting the textile industries and dyeing departments at a cost of 70,000*l.*

In 1887 the Yorkshire College entered the Victoria University as its third constituent college, and thus obtained the privilege of preparing its students for its own degrees.

To pass briefly in review the more recent developments, we must record the building of the Baines wing as a memorial to Sir Edward Baines, which was opened by the Prince and Princess of Wales (their present Majesties) in July, 1885; the building of the leather industries department in 1889 at a cost of 5668*l.*, mainly defrayed by the Skinners' Company; the founding of the agricultural department in 1890; and the building of the library, college hall, and medical school in 1894.

In 1903, when the union of the three constituent colleges of the Victoria University was dissolved and the Yorkshire College became the University of Leeds, the Privy Council, in recommending the grant of a university charter, stipulated that the capital of the institution should be increased.

The council has now succeeded in raising a little more than 100,000*l.*, more than half of which has already been expended in extensions, constituting the new buildings which His Majesty the King, as visitor of the University, opened on July 7.

The new buildings, the design and erection of which have been entrusted to Mr. Paul Waterhouse, comprise the main block extension in College Road for the arts and education departments, the temporary building for physics and chemistry, the mining, fuel, and metallurgical block, the laboratories for electrical engineering, the extension of

the mechanical engineering building, certain additions to the textile department, and a central boiler house. The first of them in date of completion is the laboratory for mining, fuel, and metallurgy. The building was erected and equipped mainly from a fund of about 8000*l.* contributed by the Yorkshire Coal Owners. It stands by itself near the main university buildings, and is a simple three-storied red-brick structure. It is divided into two departments, that of mining, which is mainly on the ground floor, being under the supervision of Prof. Thompson, whilst the fuel and metallurgy department, under Prof. Bone, is housed mainly on the first floor.

The Mining Department.—This includes a lecture-room capable of seating fifty students, which it shares jointly with the department of fuel and metallurgy; a drawing office, which is equipped with surveying instruments; a general mining laboratory for the study of ore dressing and coal-washing, which contains laboratory crushing and sampling machines, small jigs, slime tables, vanning shovel, and gold-washing pans, with the necessary assaying equipment for testing the products. Adjoining is an annexe for larger sized coal-washing and ore-dressing machinery, and includes a stone breaker, Cornish rolls, a stamp battery, jigging screens, &c. There are also fans and galleries for demonstrating the principles of ventilation of coal mines, and a photometric and lamp room for the study of safety-lamps and of different methods of gas-testing as ordinarily employed in collieries.

The Gas Engineering, Fuel, and Metallurgy Department.

—This includes a large furnace-room, a general laboratory more especially for gas and fuel investigations, a balance and galvanometer room, stores, private laboratory, and a museum with a lecture-room on the top floor. The department represents a somewhat new departure in technical training, for in addition to the usual work connected with the study of metallurgy, it is laid out for the experimental study of different kinds of fuel and for preparing students for the working of gas plant for lighting and heating. In this connection it may be mentioned that the department is receiving financial assistance from the Institute of Gas Engineers in the form of an endowment of 500*l.* a year, which is being raised by the efforts of Sir George Livesey, and a fellowship of 100*l.* a year for research in connection with the gas industry. The furnace-room is equipped for the practical study of the characteristics of metals and alloys. The whole length of the room along one side is furnished with furnaces standing on stone slabs, including a full range of gas crucible furnaces, oil cyclone furnaces, a gas reverberatory furnace, muffle, sagger, and retort furnaces, with blast driven by a Crowell blower. Half the floor space is occupied by machines for testing the mechanical properties of metals and alloys, a rolling mill for reducing $\frac{3}{4}$ -inch rods to $\frac{1}{4}$ -inch section, tensile-testing machine, a torsion-testing machine, and a set of electrically driven machines for cutting, grinding, and polishing sections, and preparing them for microscopic examination and photography. Adjoining the furnace-room is a laboratory with a special installation of apparatus for research on gaseous explosions under pressure, a compressing plant for obtaining compressed gases up to 200 atmospheres, and bench for analysis of coal, steel, &c.

The furnace and adjoining balance-room contain a complete installation of recording electrical and optical pyrometers, and the laboratory is also equipped with gas and bomb calorimeters for calorimetric determinations and apparatus for gas analysis. The equipment of these laboratories has been carried out at a cost of about 1000*l.*

The Electrical Engineering Department.—This department has been removed from its very cramped quarters in the main block, and now occupies a new and spacious building specially arranged, and standing by itself on the north side of the north quadrangle. It comprises a lecture theatre, drawing office, and photometer room equipped with the latest standards and apparatus for the measurement of the candle-power of electric glow and arc lamps, gas burners, &c.; a transformer room supplied with low- and high-pressure static transformers, rotary and electrolytic rectifiers, and apparatus for investigating efficiency of such plant; an instrument room, equipped with pressure, current and power standards, and a variety of testing